

WHAT IS CLAIMED IS:

1. A steering wheel for incorporating an air bag device, the steering wheel comprising:

5 a steering wheel body including a core;
an air bag module attached to the steering wheel body;
a metal plate arranged in the air bag module facing
towards the core;

a first engaging portion arranged on one of the core
10 and the metal plate; and

a second engaging portion arranged on the other one of
the core and the metal plate to resiliently engage the first
engaging portion.

15 2. The steering wheel according to claim 1, further
comprising a stabilizing mechanism for preventing the air
bag module from chattering on the steering wheel body.

3. The steering wheel according to claim 2, wherein
20 the stabilizing mechanism includes an urging mechanism for
urging the metal plate away from the core.

4. The steering wheel according to claim 2, wherein
the stabilizing mechanism includes an urging mechanism for
25 urging the metal plate so that at least part of the metal
plate abuts against the core.

5. The steering wheel according to claim 4, wherein
the core includes an annular rim core, a boss core arranged
30 in the center of the rim core, and a plurality of spoke
cores connecting the boss core to the rim core, with the
urging mechanism urging the metal plate so that at least
part of the metal plate abuts against one of the spoke

cores.

6. The steering wheel according to claim 4, wherein:
the urging mechanism includes a pressing spring
5 arranged in the metal plate and having a pressing portion;
the first engaging portion includes a tapered portion
having an inclined surface that is pressed by the pressing
portion; and

the inclined surface is formed to increase the pressing
10 force of the pressing spring when the amount of displacement
of the air bag module increases in a direction opposite to
the direction in which the air bag module is attached to the
steering wheel body.

15 7. The steering wheel according to claim 6, wherein
the pressing spring is a coil spring having a first end
defining the pressing portion, a second end holding the
metal plate, and a coil wound between the first end and the
second end, with the pressing portion being resiliently
20 movable in the winding direction of the coil.

8. The steering wheel according to claim 6, wherein
the pressing portion moves in directions in which the
pressing spring is compressed and expanded.

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9. The steering wheel according to claim 2, wherein
the stabilizing mechanism includes a spring for urging the
metal plate away from the core, with the spring having an
end forming part of the second engaging portion.

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10. The steering wheel according to claim 9, wherein
the spring is a coil spring having a coil, with the coil
being inclined when the end moves along the first engaging

portion.

11. The steering wheel according to claim 1, wherein the first engaging portion is a hook and the second engaging
5 portion includes a resilient member resiliently engageable with the hook, and wherein the hook has a stopper for preventing the hook and the resilient member from being disengaged.

10 12. The steering wheel according to claim 11, wherein the hook has an engaging position where the resilient member is held and a release position where the resilient member is disengaged from the hook, with the stopper having a guide
15 that uses the resiliency of the second engaging portion to guide the resilient member to the engaging position.

13. The steering wheel according to claim 1, wherein the core includes an annular rim core, a boss core arranged in the center of the rim core, and a plurality of spoke
20 cores connecting the boss core to the rim core, with at least one of the spoke cores having a bendable portion that is bent when the rim core is displaced, and the first engaging portion being closer to the rim core than the bendable portion on the at least one of the spoke cores.

25 14. The steering wheel according to claim 1, further comprising a lock mechanism including a spring having a pivot shaft pivotally held by the first engaging portion and a movable shaft extending parallel to the pivot shaft and
30 being movable between an initial position and a lock position, wherein:

the spring is held in a state in which the movable shaft is urged away from the pivot shaft;

the second engaging portion pivots the movable shaft about the pivot shaft to the lock position to be engaged with the first engaging portion when attaching the air bag module to the core; and

5 the second engaging portion pivots the movable shaft about the pivot shaft from the lock position to the initial position to be disengaged from the first engaging portion when an external force separating the movable shaft from the lock position is applied to the movable shaft and the air
10 bag module is moved in a direction in which the air bag module is removed from the core.

15. The steering wheel according to claim 14, wherein:
the lock mechanism includes a pair of parallel arms
15 extending perpendicular to the air bag module, each arm having a first notch engaged with the pivot shaft, a second arm engaged with the movable shaft when the movable shaft is located at the initial position, a third notch engaged with
20 the movable shaft when the movable shaft is moved to the lock position from the second notch, and a guide for guiding the movable shaft from the second notch to the third notch;
and

the core includes a first tongue, a second tongue, and a third tongue located at positions corresponding to the
25 pair of arms, with:

the first tongue disengaging the movable shaft from the second notch and moving the movable shaft to the third notch in cooperation with the guide when pressure is applied to the air bag module to attach the
30 air bag module to the core;

the second tongue fastening the movable shaft when the movable shaft is arranged in the third tongue;

the first and second tongues arranged between the

pair of arms when the air bag module is attached to the core;

the movable shaft being disengaged from the third notch by applying external force to the movable shaft with a tool inserted through a hole located near the second tongue; and

the third tongue moving the movable shaft from the third notch to the second notch in cooperation with the guide when the external force is applied to the movable shaft to disengage the movable shaft from the third notch and the air bag module is moved in a direction in which the air bag module is removed from the core.

16. The steering wheel according to claim 15, wherein the steering wheel has an upper side that faces towards a driver, and the third notch is located upward from the first notch and the second notch is located downward from the first notch.

17. The steering wheel according to claim 15, wherein the guide includes a curved surface or an inclined surface for guiding the movement of the movable shaft about the pivot shaft.

18. The steering wheel according to claim 15, wherein the first tongue includes a sloped end for disengaging the movable shaft from the second notch and for aiding the movement of the movable shaft from the second notch to the third notch.

19. The steering wheel according to claim 15, wherein the second tongue includes an upper surface for aiding the disengagement of the movable shaft from the third notch when

the external force resiliently flexes the movable shaft.

20. The steering wheel according to claim 1, wherein
the first engaging portion is a hook arranged on the core
5 and the second engaging portion is a catch arranged on the
metal plate and including a resilient member resiliently
engageable with the hook.